OLOGY DEPARTMENT

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SEPTEMBER 17, 1949

SCIENCE NEWS LETTER

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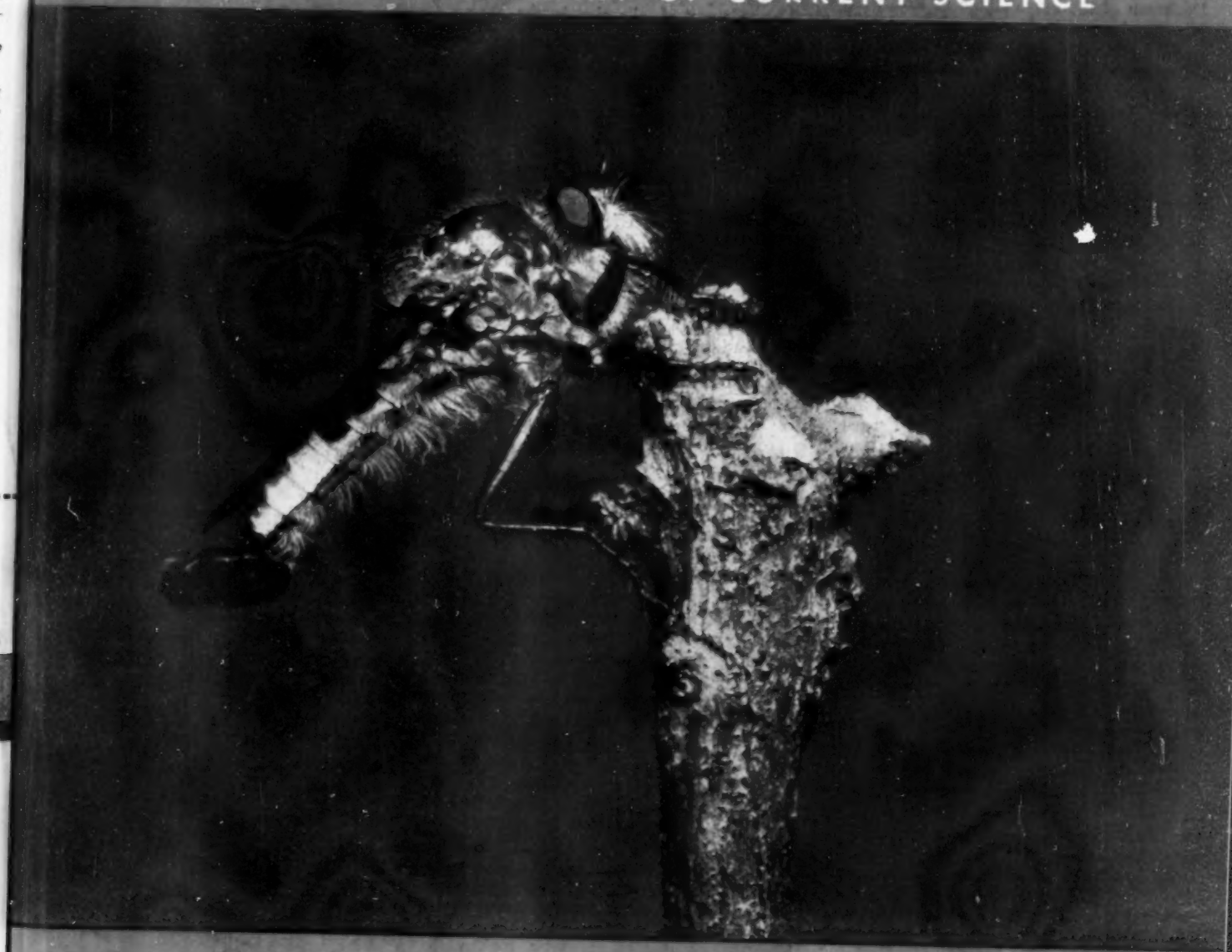
THE WEEKLY SUMMARY OF CURRENT SCIENCE



Robber Fly

See Page 191

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MEDICINE

Cortisone May Aid Allergy

This is an unexplored possibility but the chemical comes from a gland which is known to react to the causes at the root of allergies.

➤ CORTISONE, the new and famous though scarce remedy for rheumatoid arthritis, may point the way to better treatment for hayfever, asthma and other allergies.

This suggestion comes from Dr. Louis Prickman of the Mayo Clinic of Rochester, Minn., where only four months ago Cortisone's value in rheumatoid arthritis was discovered.

Cortisone's discoverer, Dr. E. C. Kendall of the Mayo Clinic, has conferred with other scientists in New York on ways to finance further research on the drug.

Cortisone is not suggested directly as a remedy for allergies in Dr. Prickman's report. He sees its success in relieving arthritis symptoms as showing "a promising new direction for allergic research."

"Rheumatoid arthritis and allergic diseases," he points out, "have any number of features in common and the underlying mechanism may be the same."

The allergic reaction, whether it comes as hayfever, asthma, hives or a reaction to penicillin, is a defensive process, Dr. Prickman explains. It is a "warning on the part of nature" that the cells of the body have met a harmful substance.

The outer rind, or cortex, of the adrenal glands which produce the hormone now called Cortisone is known to take part in an "alarm reaction" when the body gets under fatigue and psychological stresses. Infections, fatigue and nervous factors appear to be important causes of many of the cases of severe asthma, hives and other allergies which come on after middle age and usually without any specific cause such as a pollen, horse dander, certain foods, and the like.

This picture of allergies is the reason Dr. Prickman thinks allergy fighting might go ahead faster and more successfully by following the Cortisone—ACTH leads.

ACTH is the scientific shortname for another hormone chemical, the adrenocorticotrophic hormone. This hormone is produced by the tiny pituitary gland in the head, and acts to stimulate the adrenal gland cortex to produce its hormone. ACTH has been found as effective as Cortisone, the adrenal cortical hormone, in rheumatoid arthritis but supplies of it are just as scarce as supplies of Cortisone. At present Cortisone is being partly synthesized, starting with bile from slaughtered cattle. The synthesis is extremely complex and difficult.

Possible plant sources, from the seeds of a vine, growing of which is illegal in Africa, to the tropical yam of the western hemisphere, are now being intensively investigated.

Dr. Prickman's suggestion on Cortisone and allergies was made to a staff meeting of the Mayo Clinic and is reported in the clinic's PROCEEDINGS (Aug. 17).

Science News Letter, September 17, 1949

ARCHAEOLOGY

Noah's Ark Fiction?

➤ SCIENTISTS in Washington suggest that those looking for Noah's ark may be in search of fiction.

Mt. Ararat has been climbed several times, and descriptions published of the peak make it very doubtful that any remains of the ark famous in Bible story will ever be found there.

Some are even doubtful that there ever was an ark in reality; it may be a symbol in ancient allegory.

The Bible account has its parallel in the ancient Babylonian traditions. In fact, the Babylonian account has such striking similarity to the Bible story that experts believe they must have had a common origin.

In each case, there is divine revelation of the coming of the deluge. Both stories relate the building of the vessel, pitching it inside and outside with pitch. In both stories, birds were sent out to test the receding of the waters but in the Babylonian version, it was a dove, a swallow and a raven that went out in place of the three trips of the dove as in the Bible version.

In both versions, the ark came to rest on a mountain where a sacrifice was offered and in both versions it is recounted that "the Lord (or the gods) smelled a sweet savor."

An important difference in the Babylonian story is that the hero took with him into the ark not only the animals but also craftsmen of every kind so that the various skills known to man should not be lost.

In Greek legend, the king, Deucalion, was warned by his father, Prometheus, to build a chest (another meaning for the word ark) and in it he and his wife escaped from a flood, floating for nine days and finally grounding on Mt. Parnassus.

Deluge stories are commonly found in southern Asia, and in Central, South and North America.

Reports coming out of Armenia state that a monastery in the village of Echmiazin at the foot of Mt. Ararat has what is claimed to be a piece of petrified wood from Noah's ark, but other parts have not been found although the monks have searched for many years.

Science News Letter, September 17, 1949

MEDICINE

Hypnotism Found to Increase Muscle Power

➤ DISCOVERY that hypnotism can add muscle power may open up a new vista of hope for disabled veterans and polio victims, the American Congress of Physical Medicine meeting in Cincinnati, Ohio, was told.

In tests made by Dr. Sedgwick Mead, assistant professor of physical medicine at Washington University School of Medicine in St. Louis, patients gained on an average 16.8% in the strength of arm muscles when hypnotized. Their endurance capacities, however, were not affected.

Dr. Mead suggests that, based on this discovery, hypnosis may help in rehabilitating patients with injured arms and legs and in bringing back strength to polio-weakened muscles.

No applications of this method have yet been made on injured patients.

Science News Letter, September 17, 1949

MEDICINE

Allergy Linked to Cold-Susceptibility

➤ ALLERGY plays an important role in the susceptibility to colds, an editorial in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Sept. 10), pointed out.

This conclusion is based on the researches done by Drs. N. Fox, G. Livingston, J. W. Harned, and S. Peluse, of Chicago, who have studied over 3,000 cold-susceptible patients. Eighty percent of the first 1,200 patients studied showed an allergic condition or were from allergic families.

Here is how they believe allergy aids cold infection: Allergy may start by a fall in temperature and increase in humidity. The body responds by releasing histamine into certain shock centers such as the respiratory tract which weaken the local defense mechanism. This opens the way to attack by the cold virus or other germs.

The person susceptible to colds does not necessarily have an obvious allergy. The researchers found that this type of patient often has a borderline allergy which is mostly overlooked because the symptoms are so slight.

Science News Letter, September 17, 1949

ARCHAEOLOGY-ANTHROPOLOGY

Stone Age Man in Alaska

Buried stone age dwelling sites found in arctic Alaska open up a new frontier of American prehistory. So far, no human skeletons have been found.

➤ DISCOVERY of two buried dwelling places of mysterious stone age men who lived in arctic Alaska long before the earliest Eskimos, probably 10,000 years ago, has opened a new frontier of American prehistory.

Working independently, Dr. Louis Giddings of the University of Pennsylvania found an old campsite on Seward Peninsula and Dr. Helge Larsen of Copenhagen's Danish Museum found a cave 35 miles from Deering, both of which had flint implements mingled with caribou bones, showing a new kind of neolithic culture similar to that of stone age men of Asia and Europe.

Their findings were presented to the Twenty-ninth International Congress of Americanists in New York.

Since the discoveries were made only a few weeks ago, the finds are not yet positively dated, but they are certainly long before the Christian era and they are proof that stone age men, following the receding glaciers of the Ice Age, lived in what is now Alaska.

The buried evidences of Alaska's stone age men were found in layers of the earth below those of the earliest known Ipiutak Eskimos who hunted whales and used some iron tools bartered from Siberia. Below the Eskimo culture layer there was found a layer of undisturbed clay that accumulated when human beings were not there. Below were the signs of the stone age people, who used a special kind of small flint scraper implements, called microliths, that were made by knocking a long flake off a core of the stone.

No human skeletons were found, and anthropologists and archaeologists will be searching Alaska next spring when the country opens up for possible burials of this ancient people, as well as additional sites.

The best judgment now is that the stone age Alaskans are not the ancestors of the modern Indians or the Folsom men who are known so far only by their special weapon points found in archaeological excavations in western United States. But they are considered to be of upper paleolithic and perhaps even middle paleolithic age which makes them the most ancient Americans so far found.

Science News Letter, September 17, 1949

EMERGENCY RUBBER LIFEBOAT—Thirteen men can hold onto the lifelines alongside this boat while there is room for 12 men inside the boat. A Coast Guardsman is preparing to inflate the two six-foot square floor sections which can be thrown into the water to support an additional 10 men.

ANTHROPOLOGY

Yuma and Folsom Men Probably Contemporaries

➤ EVIDENCE that the two main groups of Stone Age "Americans" were contemporaries about 10,000 years ago was presented to the Twenty-ninth International Congress of Americanists in New York by Dr. John Hall Moss, Franklin and Marshall College geologist.

Dr. Moss this summer studied the geological formations at the Finmey Yuma site at Eden, Wyo., where Yuma points had been discovered. The Yuma points have been considered generally earlier than Folsom points, but Dr. Moss' findings indicated that Yuma man had been in southwestern Wyoming right up to only about 10,000 years ago. This puts him well into the period of Folsom man.

Yuma man apparently began earlier than Folsom, but the new evidence indicates that he continued throughout the period of Folsom man.

Science News Letter, September 17, 1949

ENGINEERING

New-Type Rubber Lifeboat Rides Waves Easily

➤A NEW-TYPE rubber lifeboat, now in production by the B. F. Goodrich Company, Akron, Ohio, while weighing only 186 pounds complete with emergency equipment, has sufficient buoyancy to support 12 men inside and 13 others clinging to lifelines hanging over the edges.

It is constructed of American-made rubber, is 14 feet long and six feet wide when in use, but on shipboard is a package four feet long and two feet wide. When thrown overboard in an emergency, a ripcord is pulled. The waterproof zippered cover unzips itself and pops off, whereupon the boat unfolds, inflates itself from gas cylinders and opens right side up in the water.

Two pounds of air in the twin-compartmented rubber tubes provide sufficient buoyancy for the load of 12 plus 13 men. Two inflatable floor partitions, each six feet square, can be tossed into the sea as life preservers for an additional 10 men. Already tested by the U. S. Navy and Coast Guard, it has been found to ride the waves easily even in a rough sea.

Equipment contained in the packaged unit includes a tent-like canopy, four wooden paddles, two air pumps, two carbon dioxide cylinders, a small boarding ladder, food and water rations, fishing kit, flashlight, signal mirror and dye sea markers. The canopy top can be used to catch rain water, as well as for protection.

Science News Letter, September 17, 1949

PSYCHOLOGY

No Drop in Intelligence

➤ OUR civilization is not growing dumber, losing its intelligence, although the wealthy and better educated classes are having smaller families.

This assurance was given the British Association for the Advancement in Science in Newcastle-Upon-Tyne, England, by Dr. P. E. Vernon, psychologist for the British Admiralty.

Other psychologists backed up Dr. Vernon who took issue with the opinion of Sir Cyril Burt, of the University of London, that by the end of the century the proportion of superior children will be half that in 1920 and the proportion of the very dull will be more than doubled.

Although psychologists admit that the most intelligent are not passing on their gifts to the next generation because of their small families, still the children do not appear to be any dumber than their parents or grandparents.

Perhaps something is wrong with the I. Q. tests, Dr. Vernon suggested. Maybe they are influenced by the environment or the children get higher scores as they grow more used to being tested.

"There are great difficulties in proving the extent to which intelligence is inherited, either by pedigree, twin resemblance, or other investigations," he said.

Prof. L. S. Penrose, another psychologist, expressed doubt of the prediction of geneticists that the intelligence level will decline. "Genes for high intelligence are apparently being continually lost but this is probably an illusion," he declared.

Effects of slight changes in environment can easily surpass the effects of natural selection on human characters, he indicated. Also stable hereditary conditions can be produced by the intermarriage of differing kinds of people—a hybrid vigor—even in the presence of the tendency of the intelligent and the stupid to marry others like them in intelligence.

Two surveys of the intelligence of Scottish children indicate that the youngsters of today are actually brighter, not duller, than their elders.

In 1947, a group intelligence test was given to all 11-year-old Scottish children. Results were compared with a similar survey of 11-year-olds in 1932. It was shown that the 1947 children are brighter, although the brightest children come from the smallest families.

Science News Letter, September 17, 1949

CHEMISTRY-ENTOMOLOGY

Silicone Greases Collect Germs Effectively

➤ BACTERIA, pollen grains, fungus spores and other airborne troublemakers can be more advantageously collected on the sticky surface of a silicone grease than on vaseline, agar or other "stickums" now employed, Drs. S. M. Pady and C. D. Kelly of McGill University, Montreal, point out in the journal, SCIENCE (Aug. 19).

Glass plates or other objects smeared with sticky substances have been in use for some years for capturing microscopic objects floating in the air, sometimes on the ground, often on airplanes at high altitudes. All the media hitherto used change consistency with temperature, the two Canadian scientists point out. At the very low temperatures encountered in high airplane flights some of them freeze, lose their stickiness, and become unable to capture anything.

The silicone greases, on the other hand, keep the same stickiness at deep sub-zero temperatures that they have at summer warmth, and so will function as catchers under any circumstances. Moreover, they may if desired be sterilized by heat, still without changing the character of their surfaces.

Science News Letter, September 17, 1949

Goldenrod, suggested by some as the national flower because it is distinctively American, is condemned by others in an erroneous belief that it is a prime cause of hay-fever.

Question Box

ARCHAEOLOGY

What attitude do scientists have to Noah's ark? p. 178.

ARCHAEOLOGY-ANTHROPOLOGY

How has a new frontier of American prehistory been opened? p. 179.

GENERAL SCIENCE

How do our standards affect modern art? p. 182.

MEDICINE

What is the effect of drinking alcohol daily? p. 181.

Why may Cortisone point the way to better treatment of allergies? p. 178.

PHYSIOLOGY

Why will there probably never be a machine that will work like the brain? p. 181.

PSYCHOLOGY

What protection is there from mass murder by crazed people? p. 183.

Why do some scientists believe intelligence is not declining? p. 180.

VETERINARY MEDICINE

How may barren cows be treated to give milk? p. 184.

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PHYSIOLOGY

No Machine Like Brain

The idea that a machine can be created to work like the human brain is attacked by a British scientist who believes the idea will be eventually discarded.

➤ MAN'S mind has not been able to make a machine that works like his own brain, Dr. Geoffrey Jefferson, professor of neurosurgery at Manchester University told the British Association for the Advancement of Science at Newcastle-Upon-Tyne, England, taking issue with the theory of cybernetics put forth by Prof. Norbert Wiener of Massachusetts Institute of Technology.

"There is no authority for assuming that the brain works like a mechanical or electronic machine," Dr. Jefferson said. "There is definite similarity, especially on the small scale of two nerve cells. But it may be a great mistake to assume that nerve action is the same throughout the infinitely complex human nervous system.

"We do not know how nerve impulse is translated into thought. We haven't the slightest clue to the mode of formation of worded concepts."

Man is the only animal who chops up sound to make speech, Dr. Jefferson said. But he believes that there may be an unrecognized similarity to speech in the lower animals.

Dr. Jefferson defined the brain as a collection of data stored as experience and synthesized into thought and responses to meet our needs.

He asked scientists not to forget that cybernetics merely points to an analogy.

"The mechanistic viewpoint will eventually, if reluctantly, be discarded," Dr. Jefferson predicted. "Man is indeed master of himself and it is his brain which makes him so."

Mechanistic explanations of the brain and mind are as fallacious as the physical laws of two centuries ago that helped biological progress although they were proved false, Dr. A. D. Richie, professor of philosophy of Edinburg University told the scientists. The riddle of mind and brain will be solved by metaphysical thought and not on a physical basis, although the mechanical concepts may be temporarily helpful.

The human brain is not sufficiently developed evolutionally to achieve a comprehension of the intricacy of its own mechanism, Dr. Alexander Kennedy, professor of psychology and medicine at Durham University said, although he did not agree with Dr. Ritchie.

Sinfulness may have a physical basis, Dr. Kennedy said, since moral awareness is dependent upon nervous mechanism. This is shown in the case of amoral behavior patterns following encephalitis or leucotomy, an operation in which the white matter of the frontal lobes of the brain is cut. Moral awareness is thus shown to be not purely subjective in the mind but based on physical factors.

Science News Letter, September 17, 1949

PSYCHOLOGY

Disability No Joke To Man Who Has It

➤ DISABLED persons laugh at the same jokes as do normal persons—provided the joke is not about a physical handicap, Drs. Milton W. Horowitz and Leola S. Horowitz, of the University of Kansas, told the American Psychological Association in Denver, Colo.

Eight crippled individuals and 13 nonhandicapped persons were asked to rate jokes for humor and for humiliation. Some of these jokes were about various handicaps and others were "innocuous." Neither the crippled persons nor the normals found one type of joke more humiliating than the other, but both found a difference in their humor.

Both groups agreed pretty well in their ratings of the "innocuous" jokes, but significant differences were found in the handicap humor.

Science News Letter, September 17, 1949

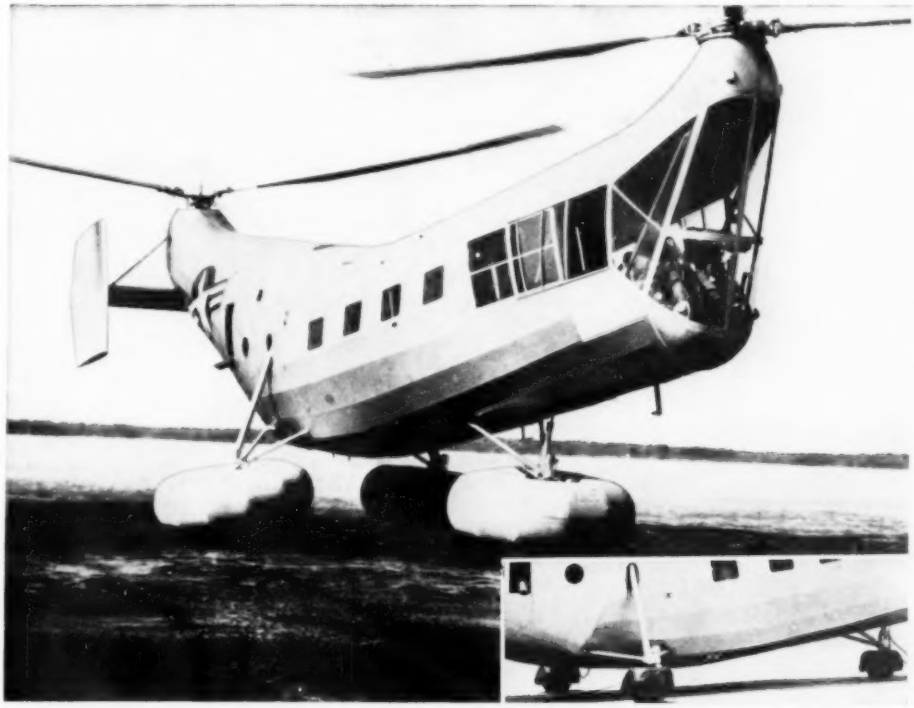
MEDICINE

Daily Alcohol Drinking Is Damaging to Brain

➤ ALCOHOL, drunk every day in large quantities, causes permanent damage to the brain. This is revealed in mental tests and also in the brain waves, or electric impulses from the brain itself.

The tests, which were conducted on 51 alcoholics without mental disease, were reported to the American Psychological Association in Denver, Colo., by Dr. Lucille B. Kessler, of Traverse City, Mich., State Hospital.

Alcohol is a potent poison, Dr. Kessler told the meeting. When in contact with the nervous system it can produce sludging of the red blood cells. This is a condition in which the blood does not flow smoothly, but forms clumps of cell masses which



***HELICOPTER GETS FLOATING FEET**—Nylon floats have been attached to the wheels of this tandem rotored Piasecki HRP-1 "Rescuer" helicopter of the U. S. Coast Guard. It enables it to set down easily on the water for emergency rescues. It was designed by Cmdr. Frank A. Erickson, head of the Rotary Wing Development Unit at Elizabeth City, N. C. The pilot needs only pull a cord to release the floats. Insert photo shows how compactly the floats fold around the landing wheels.*

move slower than normal, occasionally blocking the blood vessel. The result is an oxygen starvation of the tissues and possibly the brain.

In addition to its direct poisoning effect, alcoholism is accompanied by lack of vitamins B_1 and C which makes the tiny (capillary) blood vessels fragile and may cause hemorrhages in the space between the skull and the brain.

The brain damage showed up, Dr. Kessler reported, in impairment of the memory, thinking, and social judgment and, in the worst cases, in difficulty with arithmetic.

The electric rhythm of the brain itself is abnormally fast and there is an absence of the special brain wave pattern known as the alpha rhythm which is ordinarily characteristic of the brain at rest.

Science News Letter, September 17, 1949

MEDICINE

Inducing German Measles

➤ A GROUP of women in Australia have volunteered to get German measles, and some of them got the disease, in the fight to protect babies of the future from being born with cataracts or deaf-mutism or heart defects through this disease.

The experiment, conducted by the Hall Institute at Melbourne, Australia, is called to the attention of American physicians by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Sept. 10).

German measles, medically known as rubella, is a harmless disease to the person having it. But when it attacks a woman during the first three months of pregnancy, it is likely to cause defects of eyes, ears or heart in the unborn baby. Australian doctors were first to notice this relationship. English and American physicians have since confirmed the findings.

Infecting girls and young women with the German measles germ before they married has been suggested as one way of preventing the disease's harmful effects on future babies.

This can be done, the Australian studies, reported by Dr. S. G. Anderson, show. Material washed from the throats of patients with German measles was put into the noses of the women volunteers. Within 13 to 20 days after, some of them developed the typical German measles rash. A few days before they had swollen glands, also typical of the disease. Other persons susceptible to the disease got it from contact with the volunteers who had the experimental disease.

More than half, 14 out of 25, volunteers did not get the disease. Five of these had had the disease six to nine years before, it was learned, and the other nine probably had had it in a mild form that escaped notice at the time. Dr. Anderson thinks this is strong circumstantial evidence that a person who has had the disease will be immune to it for at least nine years. Artificially inducing the disease in a woman at the age of 20 could therefore be expected to protect her against the disease over the period when she would probably be having children.

Application of these results, the JOURNAL points out, will have to take into consideration the existence of a considerable proportion of persons resistant to the disease who have no history of having had it and the dangers of transmitting other infections.

Science News Letter, September 17, 1949

MEDICINE

Supposed Breast Cancer Shows Up As "Bobby Pin"

➤ THE 38-year-old housewife, mother of three children, went to her doctor because of a lump in her breast. Her mother and father had both died of cancer. The doctor, after X-rays and other examination, diagnosed the lump as cancer and advised an operation.

On the operating table the surgeon made a cut below the nipple, started to remove a piece of tissue for microscopic examination, and found a "bobby pin."

Reviewing the X-ray picture of the chest, the "bobby pin" could be seen but had been thought to be on the patient's clothes.

The patient herself had no idea how the pin got into her breast but thought she must have rolled over on it while sound asleep.

"The case appears to be unique," observes Dr. Franklin G. Balch, Jr., of Brookline, Mass. He reports it in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Sept. 10), as "an unusual problem in the differential diagnosis of tumors of the breast."

Science News Letter, September 17, 1949

VETERINARY MEDICINE

Weight of Cattle Operates New Insecticide Duster

➤ THE weight of the animal itself produces the driving blast of air in an insecticide-dusting device for livestock on which Alfred Paul, Jr., Paul Spur, Ariz., received patent 2,480,601.

The cattle dusting takes place in a narrow chute through which the animals are driven. The insecticidal dust from nozzles in the side walls covers them completely. The necessary air blast to carry the dust is created by a bellows-like arrangement over which the animal must walk.

This is described as a depressible floor, over a small pit and mounted on coil springs. The weight of the animal depresses the floor, compresses the air in the pit, and drives it out to the spray nozzles. By an ingenious arrangement, the proper amount of insecticide dust is added to the air.

Science News Letter, September 17, 1949

ICHTHYOLOGY

Echo Depth Finders Move In on Old Izaak Walton

➤ IZAAK WALTON would be astonished and dismayed to learn the latest techniques of catching fish proposed by fishery experts at Lake Success, N. Y.

The leisurely man with a long pole and the day to waste is giving way to impatient men with radar and no time to lose.

J. Renou of the French Navy's press information service told how radar and echo-ranging devices have been adapted to detecting fish and then identifying them.

He told the fishery section of the United Nations Scientific Conference on the Conservation and Utilization of Resources of an echo-ranging device that can detect any school of fish at distances varying from about 650 feet to more than a mile.

Study of the echo pattern enables the fisherman to tell what kind of fish they have located, he said.

Michael Graham, United Kingdom director of fisheries, cited similar work in England which has made it possible to identify herring, sardines and other fish at considerable distances.

Science News Letter, September 17, 1949

GENERAL SCIENCE

Modern Art Suffers from Our Treatment of Artists

➤ THE trouble with modern American art is the way we treat our artists and craftsmen, a scientist declared in New York.

Dr. Gene Weltfish, Columbia University anthropologist, explained to the Twenty-ninth International Congress of Americanists that artists suffer from anxiety and insecurity. They have to worry about losing jobs. They are looked down on by some people.

Compare this, Dr. Weltfish suggested, with the life of the basket makers of the Pima Indians of our own Southwest or certain Amazon tribes in South America. These artists and craftsmen are not troubled by the threat of losing their jobs. They are not "pushed around."

They do not have to worry "where the next meal is coming from."

However primitive compared with our standards, these tribes have a better way of life for the artist and craftsman than our modern factory-filled civilization, the anthropologist contended.

Science News Letter, September 17, 1949

PSYCHOLOGY

Avoiding Mass Murderers

There are many revealing signs and symptoms that can be detected in the people who suddenly become crazed and commit mass murders.

➤ HOW can people protect themselves from mass murders by crazed persons running amuck?

The New Jersey veteran who shot down over a dozen people is not the first such occurrence, nor will it be the last. In the Pacific Northwest the bloody Easter Sunday murders of this year are remembered.

Here are the signs to look for among your friends and neighbors who may do the same thing:

1. Anyone who goes to great extremes in his eccentricity should be watched. In the New Jersey case this took the form of overly-religious activity, Bible reading. In other cases it may be lavish spending of money, excessive drinking, or even being over-conscientious and meticulous. This is a form of getting away from reality, which is a sign of abnormal behavior.

2. Anyone who has an accumulation of firearms or other deadly weapons and takes undue interest in them should be suspected. Most states and cities have ample laws to prevent anyone from having such firearms. It is a matter of spotting the danger and then doing something about it.

3. Anyone who feels that people are after him, that he is being persecuted, that the FBI or the police are spying on him, or that neighbors or shadowy creatures are his enemies is likely to be suffering from a psychiatric condition. This is somewhat more recognizable as a dangerous condition and, of course, the persecution complex is not always present in persons who become dangerous.

Getting action before such people become overt and commit some crime is always difficult. But for the protection of the individual who is mentally ill—and that is what such murderers are—as well as the safety of the community, his friends and relatives should act.

Get the individual to a doctor, especially a psychiatrist or a hospital handling mental cases. Call upon authorities, such as police, court officials, etc., who will appreciate and handle such a situation.

This is the best general advice that psychiatrists, psychologists, and specialists in abnormal behavior can give.

The big problem in murder is prevention. Little can be done after the crime is committed. In his book, THE SHOW OF VIOLENCE, Dr. Fredric Wertham says:

"In the life of both the individual and society, murder is not the whole drama, but only one act. The negative emotions which find release in violence may be due to problems that seem entirely personal and far removed from the social setting. But scientifically we still must ask why it is that in this particular person who lives in a society to which he should be tied by common rights, duties and aspirations, personal problems should loom so large."

Some psychiatrists feel that murders are likely to be more prevalent after a war. The late Dr. William A. White, pioneer in modern psychiatry, said: "Nothing activates the aggressive instinct more seriously than does war. An orgy of killing lets loose and it is a good many years before it is ever chained up again."

Science News Letter, September 17, 1949

AERONAUTICS

New Guide on Metals Out For Aircraft Designers

➤ AIRCRAFT designers who use metals will find much help in a new and revised edition of a publication of the Civil Aeronautics Administration just issued, entitled STRENGTH OF METAL AIRCRAFT ELEMENTS. It is available from the Superintendent of Documents, in Washington, for $1.25.

The publication was prepared by a subcommittee on Air Force - Navy - Civil Aircraft Design Criteria of the Munitions Board Aircraft Committee. It is a "one-stop" reference book for metal aircraft designers. The relatively few differences between Air Force, Navy and civil standards are noted in it. These differences are largely concerned with allowable stresses or minimum strength of typical structures.

Science News Letter, September 17, 1949

ENGINEERING

New Instrument Increases Voltage from Generator

➤ "VOLTAGE multiplier" is the name of a new laboratory instrument, revealed by General Electric in Schenectady, N. Y., which will increase 100-fold the voltage produced by a small, shop-size generator. It will step up the voltage from a 1,000-volt machine to 100,000 volts.

The instrument is still in a development stage, but may eventually be used in conjunction with X-ray equipment and atom-smashers. As explained by Charles Lemmond, G. E. scientist, it operates on the principle of the old-fashioned water wheel.

While a water wheel develops power as its buckets fill with water, he said, the new voltage multiplier builds up energy by "filling" 100 capacitors with electric charges. Connected in series, the capacitors accumulate energy by picking up their charges through a sweeping arm with "finger-tip" brushes.

Science News Letter, September 17, 1949

VOLTAGE MULTIPLIER—This new device so greatly increases the output from the small generator at the left that current leaps across gap between the two metal spheres at right.

AGRICULTURE

Irrigation Aids Expansion Of Australian Agriculture

➤ IRRIGATION is the answer to the expansion of food production in Australia, S. M. Wadham, professor of agriculture at the University of Melbourne, told members of the British Association for the Advancement of Science at Newcastle-Upon-Tyne, England.

Over 1,000,000 acres are already under irrigation, and "there is no doubt as to the ultimate capacity for an expansion of production, the limits of which can scarcely be described," Prof. Wadham stated.

The limit to this expansion will be set by the availability of water at a reasonable cost, and by other technical and economic considerations, Prof. Wadham said.

"From 150,000 acres of irrigated orchard and vineyard come produce for the largest part of the country's production of dried and canned fruit, most of which is exported," he continued.

The rice needs of 8,000,000 people are taken care of by irrigated areas. The fodder and hay for the dairying and lamb industries come from irrigated areas, and on irrigated pastures themselves graze the best dairy herds and fattest lambs.

Science News Letter, September 17, 1949

ICHTHYOLOGY

Big, Meaty Cod Feature Bering Sea Fishing Ground

➤ A NEW fishing ground, featuring meaty, 20-pound cod, has been discovered by U. S. Fish and Wildlife Service investigators off the west coast of Alaska.

Despite encouraging reports of hauls made in the Bering Sea from Norton Sound to the southern end of Nunivak Island, the area is not without its perils, a preliminary report indicated. Cold currents from the Siberian side of the Sea were blamed for many unproductive drags and such hazards as ice-borne boulders and coral-like formations which snagged and damaged trawls.

But the promising catch of cod and flatfish makes the area worth further study which it will get, Service officials said.

Science News Letter, September 17, 1949

AERONAUTICS

Disposable Oxygen Mask For Emergencies in Flying

➤ INEXPENSIVE, disposable oxygen masks for airplane passengers in emergencies when a plane rises to unexpected high altitudes to pass over a storm, were revealed at the Wright-Patterson Air Force Base where they were developed. Because never re-used, they will never require sterilization.

The mask is designed for use with standard constant-flow oxygen equipment and no changes will be required in aircraft interiors to accommodate the new device. Essentially, it consists of a porous paper face piece, a bellows fashioned of very thin pliofilm, and a plastic tubing which connects with the plane's oxygen supply. As the wearer breathes in oxygen, the bellows expands and contracts and the gases he exhales escape through the porous paper.

Early tests on the disposable mask, which engineers estimate will perform satisfactorily for four or five hours, were carried out in conjunction with the University of Washington. The mask is expected to be effective at altitudes up to 25,000 feet, but not to be satisfactory at higher levels.

Science News Letter, September 17, 1949

MEDICINE

New Sulfa Drug Aids Chronic Intestinal Ailment

➤ DOCTORS now have a new medicine which is effective against chronic ulcerative colitis, described as one of the "most dreadful and unpredictable diseases of the abdomen known to medical science."

It is a member of the sulfa drug family and is called nisulfazole. Announcement to the medical profession of its placement on the market was made by J. G. Jordan, president of George A. Breon & Co., Kansas City, Mo., manufacturer of the drug.

The sulfa drug's effectiveness in controlling symptoms of the disease was discovered in studies conducted by the company's research laboratories and by Dr. Ralph H. Major of the University of Kansas Medical School. These results have subsequently been confirmed by other investigators.

The favorable results are believed mostly due to nisulfazole's suppressing the increased supply of the enzyme, lysozyme, found in the gastrointestinal tract, and to its action in arresting the growth of bacteria.

Science News Letter, September 17, 1949

MEDICINE

High Blood Pressure Is Field of New Journal

➤ HIGH blood pressure and related circulatory diseases will have their own medical journal beginning early next year. ANGIOLOGY is the title of the new journal devoted to "peripheral vascular diseases."

Medical articles to be published in this journal will cover the group of diseases that now rank first as the cause of death in the United States. Arteriosclerosis, commonly called hardening of the arteries, and Reynaud's disease are included in such blood vessel disturbances. They are much more prevalent now that more people live longer and reach old age.

Dr. Saul S. Samuels of the Stuyvesant Polyclinic in New York City will be editor-in-chief.

Science News Letter, September 17, 1949

VETERINARY MEDICINE

Barren Cows May Give Milk Thanks to Sex Hormone

➤ A WORLD without bulls, thanks to the power of a synthetic female hormone to induce milk production in virgin heifers and barren cows, is on its way.

"The first stage in making the male redundant," in the dairy world at least, has been taken, Sir John Russell, director of Rothamsted experimental station, declared in his presidential address before the British Association for the Advancement of Science, Newcastle-Upon-Tyne, England.

Lactation was induced in the virgin heifers and barren cows by burying tablets of the synthetic female hormone, diethylstilbestrol, under the animals' skin. This is the same synthetic chemical which brings relief of hot flushes and other symptoms to many middle-aged women.

Richer milk and more of it can be produced by injections under the cow's skin of another hormone chemical, thyroxin, from the thyroid gland. Dr. H. D. Kay, of the Dairy Research Institute, Shinfield, England, has found, Sir John reported, that injections of thyroxin or feedings of iodinated milk protein (casein) increased the fat content of milk and raised the yield up to 20% after the peak of milk production was passed.

Science News Letter, September 17, 1949

ENGINEERING

Quick Temperature Change Used in New Metal Process

➤ FIVE seconds only are required to temper a metal surface in an electronic heating process revealed by General Electric in Philadelphia. It was developed by engineers in the company's switchgear division.

In this short interval a metal surface is heated from room temperature to 1,600 degrees Fahrenheit and cooled again to ordinary temperature. The process is particularly for small metal parts and is employed to harden the toothed surfaces of small ratchet wheels for automatic circuit reclosers.

The process uses an electromagnet which holds the part to be tempered within the field of a powerful electronic heater. As soon as the part has been heated to the proper temperature, an automatic switch shuts off the heater and also the current from the electromagnet, and the part drops into a cooling bath of oil.

Science News Letter, September 17, 1949

E FIELDS

ANTHROPOLOGY

Old Piltdown Man Is Only About 10,000 Years Old

➤ FAMOUS Piltdown man, long considered one of mankind's oldest ancestors, is a mere anthropological infant, not more than 10,000 years old, Dr. K. P. Oakley of the British Museum disclosed to the British Association for the Advancement of Science at Newcastle-Upon-Tyne, England.

Previously considered to be between 100,000 and 500,000 years old, the jawbone and skull are now proved by analysis of their fluorine content to be definitely of the last interglacial period.

Fossil animal bones of known geological age, dating from the Pleistocene or glacial period, unearthed nearby the human bones at Piltdown, England, had the same content of the chemical fluorine picked up from the groundwater of the locality.

Dr. Oakley exploded the attractive idea of modern man being descended from the Piltdown man, also known as Eoanthropus, the Dawn Man. A long controversy over whether the skull and the jawbone were from the same individual seems to have been settled also, as they both have the same fluorine content. Some experts held that the skull was that of a relatively recent man and the jawbone of an ancient anthropoid.

England still claims an ancient human ancestor. The Swanscombe skull was given the fluorine test and pronounced Middle Pleistocene, about 60,000 years old, and probably Britain's earliest man. But in China, Java and perhaps Africa, man-like creatures lived earlier.

Science News Letter, September 17, 1949

ASTRONOMY

Dim Stars Discovered Broadcasting Radio Waves

➤ DIM stars are broadcasting to the earth a short-wave radio noise that has been received with special antenna, the British Association for the Advancement of Science was told in Newcastle-Upon-Tyne, England, by Dr. F. G. Smith, Cambridge, expert in radio astronomy.

The "broadcasting stations" producing these four-meter waves are thought to be stars with dim surfaces, hard to see. They are about as far away as the nearest known visible stars, and distributed over the sky about the same way as stars giving off light.

Two major sources for these radio signals have been discovered in the Northern sky, and 23 smaller ones have been discovered. None of these corresponds to bright visual stars. The major sources are not stars brighter than eighth magnitude, too faint to be seen with the naked eye.

The radio stars are about as big as ordinary visual stars, as judged by a study of fluctuations of the signals received. The electrons in the stars producing signals have a motion corresponding to at least 10,000,000,000 electron volts and the temperature is about 10,000,000,000 degrees.

These immense energies suggest to Dr. Smith that the mysterious cosmic rays may originate in the same stars that give rise to the radio waves he has observed.

Science News Letter, September 17, 1949

GENERAL SCIENCE

Scientist's Nomination Held Up by Investigation

➤ BECAUSE of anti-capitalistic and pro-communistic statements he is reported to have made at a Moscow "peace conference," the British Association for the Advancement of Science has deferred renominating Prof. J. D. Bernal, University of London crystallographer, to its governing council.

Prof. Bernal is to be asked to reiterate his actual Moscow statements. Press reports stated that he accused capitalism of trying to enslave science in the interests of war. He is reported to have told the Moscow meeting that "soon in the United States no one who has not been an inveterate enemy of the Soviet Union will be allowed to teach or engage in scientific research."

Science News Letter, September 17, 1949

CHEMISTRY

Land Yields More Uranium Than Ocean Water

➤ AMERICAN experts in Washington see no practical possibility of getting uranium, raw material for the atomic bomb, out of sea water.

Scientists have known for over a decade that the sea does contain uranium as well as other radioactive elements. There is, however, much less uranium in sea water than in the same amount of ordinary earth, although it might be easier to get it out of water than out of earth. Magnesium is mined from the sea commercially.

Discussion of the possibility of getting uranium from the sea arose from a speech of Dr. Hans Pettersson of Sweden to the British Association for the Advancement of Science at Newcastle-Upon-Tyne, England.

He stated that the uranium content in sea water is fairly constant, varying between limits of one to two micrograms per liter, with a slight tendency to increase at great depths. A microgram is one one-millionth of a gram, and a liter is about the same as a liquid quart. (An ordinary dime weighs about two grams.)

Science News Letter, September 17, 1949

BIOCHEMISTRY

Action of Deadly Poison Seen as Jamming Cell Cycle

➤ FLUOROACETATE, a rat poison better known by its war secret name of 1080, acts to "jam the cycle" of cell chemistry in its killing course.

This new theory of the poison's action with the latest research on which it is based were announced at the meeting of the British Association for the Advancement of Science at Newcastle-Upon-Tyne, England, by Prof. R. A. Peters of Oxford University.

No antidote for 1080, or fluoroacetate, has yet been discovered. Prof. Peters and colleagues, however, are the scientists who discovered the antidote for arsenic and mercury poisoning, known as British anti-lewisite, or BAL. The war gas, lewisite, is an arsenic compound. Discovery of its antidote was made through fundamental biochemical studies similar to those Prof. Peters is now making on the action of fluoroacetate.

The chemical cycle which fluoroacetate "jams" is known as the tricarboxylic cycle. It is a reaction involved in the breakdown of sugar, and goes on in a cycle.

Fluoroacetate gets into the cycle, and is poisonous, because it is so like an acetate chemical normally formed during the cycle that the body's enzyme for handling the normal acetate cannot distinguish between the normal one and the fluoroacetate.

The chemical result is an accumulation of citrate to 56 times the amount normally found in kidney tissue, and 26 times the amount normally found in the heart. Why this accumulation of citrate is poisonous is not yet known.

Science News Letter, September 17, 1949

ENTOMOLOGY

Insects Invade England On Warm Air Currents

➤ ENGLAND is being invaded from the Continent. Insect pests, carried by warm air currents and winds, are drifting across the southern North Sea and the English Channel.

At the British Association for the Advancement of Science meeting at Newcastle-Upon-Tyne, A. C. Hardy, professor of zoology and comparative anatomy at the University of Oxford, reported that large groups of small insects, particularly aphids, are known to stay in the air an average of 15 hours, or 246 miles.

The floating insects are caught in four-foot nets at mast heights on ships which are over 100 miles from the coast. Knowing the time and place where the bugs are caught, their time in the air and the distance traveled are computed mathematically from known winds.

Science News Letter, September 17, 1949

GENERAL SCIENCE

Clubwork Makes Science Fun

Most of tomorrow's scientists start with Science Clubs of America, probably the largest scientific group in the world. It serves as a proving ground.

By MARGARET E. PATTERSON

ANY one of the third of a million boys and girls in Science Clubs of America will tell you science is fun!

"Especially," they add, "if you can do it with other kids."

If you'd like to ask some of these 10- to 20-year-olds why they find science so fascinating, try the nearest school laboratory after school hours. They will be there working, even on Saturdays.

Look for them in basement workshops and attic experimental stations. A barn or a woodshed is a likely place, too.

You may detect their work before you see them.

Track down the source of those strange chemical fumes, odors and explosions. You'll probably find a group of teen-agers concocting a new plastic or synthesizing a new compound.

Spot a novel radio "rig" on a roof. Inside you're likely to find a group of "hams" comparing notes on hook-ups, circuits, code call letters.

Follow the next flight of model planes you see. The youthful designers will be on the ground comparing notes on wing surfaces, gas motors, radio controls.

Or find the owners of that back yard menagerie. The white mice may belong to a boy who plans to be a doctor; the reptiles to a future zoologist; the hamsters to a girl who wants to be a biologist when she grows up.

Clubs Total 15,000

You'll find these groups of young scientists all over the nation, and in foreign countries, too. There are 15,000 science clubs in this country and abroad affiliated with Science Clubs of America. It is probably the largest scientific group in the world.

A widespread liking for science is engendered by the natural inquisitiveness of youth combined with the intensely scientific flavor of our times. Tremendous impetus for this group effort in science has stemmed from the organization of Science Clubs of America in 1941. It now enrolls most of those who will be our scientists of tomorrow. It also serves thousands of youngsters who have no desire to be professional scientists but are keen about science as a hobby or an avocation. As the citizens of tomorrow they will have a real appreciation of the role science is playing and a speaking acquaintance with its language and methods. The awe and alarm with which science is viewed by some of their elders is foreign to these well-informed youngsters.

What a science club does depends upon the age and interests of the members and the assistance of the adult who acts as sponsor.

If the members are very young, they are apt to do a great deal of collecting: sea shells, leaves, rocks, minerals, insects, stamps, pets, pictures, bird's nests or any of dozens of other combinations. Singly or in groups they track down or trade for additions to their collections. They arrange their treasures in neat boxes, carefully lettered scrap books or flashy exhibits. They dig into the books that can help them identify their finds and are alert to every chance to "swap" or exchange—by the piece or by the collection.

Among junior high school age students the interests are usually general. There may be as many interests as members—or even more as each may have a long string of hobbies he is riding at the same time.

Everything is subject to their curiosity. Individually or collectively the members may turn almost overnight from insect collecting to crystal growing; from building terraria and aquaria to glass blowing; from tropical fish breeding to scientific crime detection; from microscope studies to stuffing animals. Somewhere along the line they all, girls and boys alike, specialize in noisy, smelly chemical experiments.

Absorb Information

Junior high science club members absorb great blocks of information from one another. They shed or take on a new field of science interest as effortlessly as they might take off or put on a coat. They keep voluminous notes on observations of the weather, breeding experiments, dissections, bird migrations. They exchange complicated diagrams and plans, often understandable only to them. Books, magazines, correspondence and endless conferences with their chums are essential to quench the thirst for knowledge about their current interest.

Senior high school age members of science clubs have decided interests for such fields as astronomy, electronics, embryology,

PRIVATE PROJECT—Science club projects range from the home living room to public exhibits: 15-year-old John Lankford, Washington, D. C., has his astronomical equipment set up in the living room of his home.

GROUP PROJECT—Science club work is generally done by groups such as this one of youngsters studying taxidermy at the Los Angeles County Museum.

microscopy, etc., and join others who share their interest.

Students this age show the effect of the collecting and observation most of them have experienced in their earlier years. By sampling many fields they have discovered their likes and aptitudes and have begun to center their interests on fewer or even on one science. Generally by this time they know whether they like best to deal with living or non-living materials: whether they prefer biological or physical sciences.

Club Is Proving Ground

Science club members spend much time considering their future in science, and, if they are serious about it as a profession, they plan for careers in medicine, chemistry, physics, engineering, zoology, astronomy, mathematics or other fields according to how they feel about the experiences they have had in their clubs with dissection, chemicals, machinery, motors, microscopes, telescopes, slide rules, etc. The club serves as a proving ground at this stage, and many a youngster has thus saved himself years of time by finding out at this age what he does and does not want to do in science.

Reading is wider and more carefully planned, their records more accurately kept, their conclusions more soundly made and they seek the help of educators and scientists who can direct their new-found enthusiasms about science.

Like all organizations science clubs must deal with their business during the meetings, but this is usually dispensed with quickly and the members hurry on to the program.

The program may consist of a work session with each member carrying on his particular experimental study or it may be a demonstration of the work of one or several to the rest of the club. Sometime during the year each member thus gets a chance to "perform" and the exchange of information is considerable especially in the question periods that follow the "lectures."

Another popular type of program is given by a guest speaker who is invited to appear before the club to explain his specialty. He may be a local scientist, engineer or hobbyist. Occasionally it is an "alumnus" who returns to the club to report on his career's work. Always there are lively and extended question periods after the talk and many a guest speaker has come away limp from the number and diversity of difficult questions the members have fired at him. The public is often invited to these special meetings and parents especially find them stimulating.

Report on Reading

Clubs like to keep up with what is new in science and find a handy way to do it is to have each member report on his current reading briefly at rollcall time.

They feel a responsibility toward the school in keeping them up-to-date in science, too, and achieve this by maintaining a question box or running a "question of the week" feature on a bulletin board. Many clubs have permanent science exhibits like natural history museums or display cases which they change from week to week for all students to enjoy. They are often called upon to put on school assemblies and find that the magic type of chemical show is a sure hit with the student body. Occasionally they get serious about these programs and give their fellow students a half-hour or hour of real science.

A publication—weekly, monthly or quarterly—is achieved by some clubs. If there is enough money in the treasury this can be printed, but less affluent clubs settle for mimeographed or other types of duplicated bulletins, which they exchange freely with far away clubs to the benefit of all.

A few clubs have uniforms, usually centering around the emblem of SCA. One club decorated the walls of their quarters with scientific caricatures.

Raising money for the club must be considered. Some can be done with dues, but when large amounts are needed, they run sales of food, sell Christmas cards they have made in their photographic lab, contract for magic shows, make and sell scientific equipment, or devise some other scheme for raising needed funds.

Meeting other clubs with similar or different interests is a goal toward which all clubs work. If they are close enough to others they exchange programs and socialize afterward. Most of them belong to some regional or state organization such as a Junior Academy of Science and thus get a chance to attend a meeting with all

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other clubs in that area once or twice a year.

Science Fairs are attracting more and more clubs. In 1949 these huge showings of the work of science clubs in a locality were held in such places at Atlanta, St. Louis, Washington, D. C., Pittsburgh, Philadelphia, Boston, Providence and in Buffalo, Oneonta and Potsdam, New York. One Fair had 1,400 individual entries this year. The Fairs run from three days to 10 days and are visited by thousands of adults, who are often amazed at the scope of science interests and abilities among young people.

High spot in the year for those clubs having high school seniors is the annual Science Talent Search for the Westinghouse Science Scholarships, conducted each year by Science Clubs of America. From the 16,000 boys and girls who enter, 300 are chosen for honors in this stiff competition which requires a three-hour aptitude examination, scholastic and personal records and a 1,000-word essay on "My Scientific Project." Each of the 300 is recommended to the college or university of his choice and most receive scholarships or other financial assistance that will assure them a chance to carry on their education in science.

Out of the 300 a total of 40 are invited to Washington, D. C., for the five-day, all-expenses-paid Science Talent Institute. Here they learn of the latest developments in science, meet famous scientists, visit places of scientific interest and are awarded scholarships ranging in size from $100 to $2,800. Every club aspires to have a winner or honorable mention in this competition and many make this one of the major goals of their whole year's program.

Every school that places a winner receives a plaque to hang in their club quarters. No school has been able to win one of these each of the eight years of the competition but some can boast several. The whole school celebrates when it is honored in the Search, and some have even granted half or whole day holidays when their winner returns from the Institute after being named the best boy or girl scientist in the USA.

Organizations of scientists in 15 states cooperated with SCA in 1949 to hold state Science Talent Searches and thus were able to honor other outstanding young scientists within those states with scholarships or cash awards to further their science education.

For information about any of the activities of Science Clubs of America write to Science Service, 1719 N St., N. W., Washington 6, D. C.

Science News Letter, September 17, 1949

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METEOROLOGY

Hurricane Forecasting

➤ THE path to be followed and the probable damage to be done by hurricanes cannot yet be predicted with accuracy, but much progress in hurricane forecasting has been made in the past few years.

Because of the severe annual loss of life and property on Gulf Coast and Atlantic Seaboard regions, the U. S. Weather Bureau is giving particular study to the subject. Thirty-hour warning is now fairly reliable. These forecasts are from experienced weather men whose predictions are made on the basis of knowledge of a present hurricane and knowledge obtained by a fundamental study of hurricane movements of the past.

Cooperating with the Weather Bureau in hurricane studies is the Weather Service of the U. S. Air Force. Daring pilots of Air Force planes, with recording instruments and Weather Bureau observers abroad, have penetrated deep into the outer fringes of these gigantic tropical storms. The result is a better knowledge of air movements in a hurricane, and air movements preceding the storm, which are useful to a certain degree, in forecasting.

Of great assistance also, are radio reports from ships at sea and from aircraft over the ocean. Radiosonde, balloon-borne instruments carried high above the earth, is playing an important part. The instrument send constant weather data to the earth below by automatic radio signals.

There are hurricanes in many parts of the world, although they are known by different names. In the western North Pacific, they are called typhoons. In the northern Indian Ocean, they are known as cyclones, and in Australia as willy-willies. All, however, are tropical storms which originate close to, but not over, the equator.

The hurricane season in America is the late summer and early fall. The storms differ in violence and also in the distance they travel. Many of them hit the coast in the general Florida region, some traveling up the coast, and others crossing the peninsula to appear soon in coastal regions of the Gulf states.

The violent hurricane of 1944 that caused millions of dollars damage in the New England states, and the perhaps equally violent storm of 1947 that crossed Florida and into Louisiana, might be cited as examples. The latter took 61 lives and caused a property loss of $110,000,000. These two are the worst American hurricanes of the present forties.

During a 25-year period from 1917 to 1941, some 4,200 persons in the United States lost their lives by hurricanes, and there has been 74 fatalities since. Property damage since 1917 is estimated at about $800,000,000. The New England damage from the hurricane of 1938 was perhaps $250,000,000. This is said to be one of the most destructive storms in all history.

Science News Letter, September 17, 1949

Nuts of the *tung tree,* after the removal of the tung oil used in paints, make a meal valuable for cattle feed after a poisonous substance it contains is extracted; a satisfactory extraction process has been recently developed.

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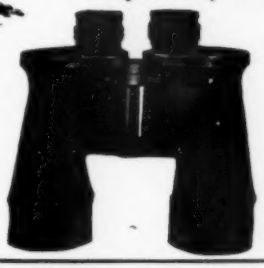

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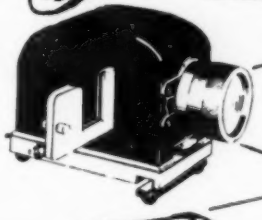

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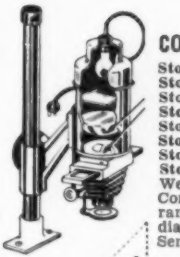

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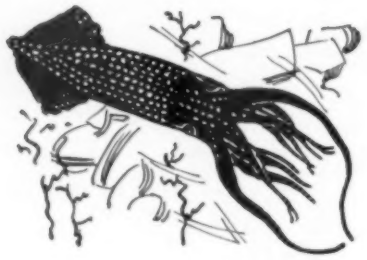
NATURE RAMBLINGS

by Frank Thone



Natural Inventions

➤ MAN'S invincible egotism is reflected in the names he gives to natural objects and structures which his own mechanical inventions chance to resemble. If someone mentions a pitcher-plant, or a hammerhead shark, or a shoebill stork, we all conjure up a vision of the fantastic creature at once, and think how aptly it was named—disregarding the fact that these things existed long before any human being had contrived a pitcher, or a hammer, or a shoe, or any other artifact; long before human beings were on the scene at all.

Fish and other sea creatures seem to have been especial victims of this tendency of man to play the part of a god and make things, not in his own image, but the image of his handiwork. Thus we have such names as sawfish, swordfish, pipefish, filefish, ribbonfish, threadfish, swordtail, sailfish, gafftops'l catfish, and a hundred others. Sometimes they are named not for their actual appearance but for the fancied resemblance of their activities to our own, as in the fiddler crab, angler-fish, archerfish, drumfish. One such naming seems to be justified: inkfish. Men use the dark fluid secreted by this squid (which is not a real fish) for ink; its brown tint is known in the water-colorist's box by the mollusk's zoological name: *Sepia*.

Fish are not the only examples of this tendency to name natural things for artificial objects or activities. Plants, especially wild-flowers, come in for a lot of it. Consider: bottle tree, barrel cactus, organ-pipe cactus, Indian paintbrush, Indian pipe, lady's slipper, Venus' flytrap, Venus' mirror, Solomon's seal, Dutchman's breeches, trumpet-flower, pincushion flower, Spanish bayonet, silversword, swordgrass, sawgrass, chain fern, shield fern, sword fern, cannonball tree, bell-flower, screw palm, sword bean, knife bean, inkberry, telegraph plant.

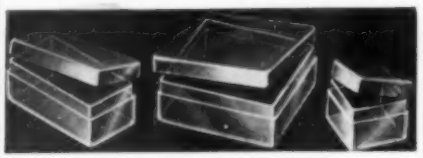
Sometimes a shape will reflect itself in half-a-dozen names. There's a whole set of cups for example: buttercup, creamcup, cupweed, leathercup, deathcup mushroom. Or a particular texture will sponsor several plants: silk-oak; satinwood, velvet-leaf.

In a few cases, the process has been reversed, and man acknowledges his debt. Such names may recognize merely chance or fanciful resemblances, such as a carpenter's horse or catheads on a ship or firedogs on the hearth or wormgears in machinery. Or they may show a definite tendency for man to study the works of nature and profit thereby.

(A reprint from SNL, Oct. 16, 1943.)

Science News Letter, September 17, 1949

Transparent Boxes



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PSYCHOLOGY

Rats Bewildered First Time They Feel Hunger

➤ RATS that are very hungry for the first time do not know what to do about it.

This was found in an experiment with 12 albino rats tested by Dr. Keith J. Hayes, of the Yerkes Laboratories of Primate Biology. He reported results to the meeting of the American Psychological Association in Denver, Colo.

Seven thirsty rats learned to run straight down an alleyway to reach water in a box through a trap door at the end of the alley. Each time they made the run they had to climb over a heap of food in a pan halfway down the runway.

For five hungry rats the experiment was reversed. They learned to run down the alley to find food and half way down the runway they waded through water in a pan. Later the thirsty rats who had run over the food to get to their water were made very hungry and put into the alleyway. They did not stop to eat when they came to the food, but ran right on according to their habit. When they got to the box at the end, some of them tasted the water, but did not actually drink. After a few runs, most of them stopped at the food pan, but ate only a little. Some took pieces of food through the trap door to eat it there.

By contrast, the rats who had been hungry during learning and had waded through water on their way to food, stopped to drink when they went down the alley thirsty. They did this on the very first trial.

No explanation was offered by Dr. Hayes of why the rats know what to do the first time they are very thirsty, but ignore the food the first time they feel hungry.

Science News Letter, September 17, 1949

PSYCHOLOGY

Businessmen Gain by Increasing Reading Speed

➤ IT PAYS for business executives of above average reading ability to take a training course in reading, Carol S. Bellows, a psychological counseler of Grosse Pointe Park, Mich., told the meeting of the American Psychological Association in Denver, Colo.

Mrs. Bellows bases this conclusion on what happened when several groups of executive personnel from two industrial plants and a bank took a 10-week course of one and a half hour training periods.

At the beginning, these executives read at about 275 words a minute. In comprehension of what they read, they scored as well as 45 per cent of college seniors.

By the end of the 10-week course, they had gained 175 words per minute in speed, now reading at the average rate of 450 words a minute. In comprehension they scored as well as or better than 70 per cent of college seniors.

The course included discussion of various reading skills and practice in their application as well as use of the Harvard reading films as a pacing device.

It pays to take such a course, Mrs. Bellows concludes, because "there is probably a significant saving in time for the business or industrial executive who increases his rate even as little as 50 words a minute.

Science News Letter, September 17, 1949

Words in Science—CENTRIFUGAL FORCE

➤ CENTRIFUGAL—you say it cent-riff-you-gal, accenting the riff—is just the opposite of centripetal, pronounced cent-trip-i-tal.

It means away from the center. It is centrifugal force that separates the lighter cream from the milk in a separator, and that throws the water out of wet clothing in the "whirl-dry" of the washing machine.

It is centripetal force that holds the earth and the other heavenly bodies in their paths around the sun, or any object in a circular path.

Science News Letter, September 17, 1949

Books of the Week

TO SERVE YOU: To get books, send us a check or money order to cover retail price. Address Book Dept., SCIENCE NEWS LETTER, 1719 N St., N. W. Washington 6, D. C Ask for free publications direct from issuing organizations.

THE BIG EYE—Max Ehrlich—*Doubleday*, 221 p., $2.50. A science fiction story which looks into the future of the world when the 200-inch telescope reveals the impending destruction of the world through collision of planets.

BIRDS' NESTS: A Field Guide—Richard Headstrom—*Washburn*, 128 p., illus., $2.75. This book shows you how to match the nest with the bird that built it. Includes over 300 birds of the United States ranging to the great plains.

CHARACTERISTICS OF RESIDUAL INSECTICIDES TOXIC TO THE HOUSE FLY—Willis N. Bruce—*Illinois Natural History Survey*, 32 p., illus., paper, free upon request to publisher, Urbana, Illinois. A report of 14 experiments.

COLLEGE BOTANY—Clarence J. Hylander and Oran B. Stanley—*Macmillan*, 638 p., illus., $5.00. A basic course in plant science.

THE CONQUEST OF SPACE—Willy Ley and Chesley Bonestell—*Viking*, 160 p., illus., $3.95. Many of Bonestell's famous astronomical paintings are brought together with a short text by Ley on our advancements in the field. For both the layman and the professional man.

DRAINAGE EVOLUTION IN THE APPALACHIANS OF PENNSYLVANIA—Henry D. Thompson—*New York Academy of Sciences*, 62 p., illus., paper, $1.25. Volume 52, Article 2 advances the hypothesis of progressive piracy and local superposition to account for the drainage.

THE STRUCTURE OF THE METROPOLITAN COMMUNITY: A Study of Dominance and Subdominance—Don J. Bogue—*University of Michigan Press*, 210 p., illus., $2.00. A study of the distribution of population by a member of the staff of the Scripps Foundation for Population Research.

FATTY ACID ANTIBACTERIALS FROM PLANTS—H. A. Spoehr and others—*Carnegie Institution of Washington*, 67 p., illus., 50 cents paper, 75 cents cloth. Report of a search for antibacterial substances effective against organisms not affected by penicillin.

HOW TO COLLECT AND PRESERVE INSECTS—H. H. Ross—*Illinois Natural History Survey*, 59 p., illus., paper, 10 cents. For the amateur as well as the trained entomologist.

IRON METABOLISM—A. Vannotti and A. Delachaux—*Grune and Stratton*, 267 p., illus., $6.50. On how the normal body uses iron and how iron metabolism is affected by disease. First published in German, translated by Edwin Pulay.

LENGTH OF LIFE—Louis I. Dublin, Alfred J. Lotka, Mortimer Spiegelman—*Ronald*, 379 p., illus., $7.00. Life insurance company health statisticians trace the progress in health and longevity from earliest times to the present day.

MECHANICS, STATICS AND DYNAMICS—Merit Scott—*McGraw-Hill*, 394 p., illus., $4.50. An intermediate-level textbook. Primarily for physics majors on the junior-senior level, to bridge the gap between the first college course and graduate study.

OIL AND GAS IN EASTERN KANSAS: With Special Reference to Developments From 1944 to 1948—John Mark Jewett—*State Geological Survey of Kansas*, 308 p., illus., paper, 25 cents. A report bringing together much of the scattered data both published and unpublished.

THE PHYSICIAN'S BUSINESS—George D. Wolf—*Lippincott*, 3rd ed., 563 p., illus., $10.00. A reference work on business for the physician. Largely rewritten, with a detailed chart on the establishment of fees.

THE PSEUDOSCORPIONS OF ILLINOIS—C. Clayton Hoff—*Illinois Natural History Survey*, illus., paper, 50 cents. Detailed study of a minute animal of the Arachinda class, of which few collections have been made in the past.

RAPID MICROCHEMICAL METHODS FOR BLOOD AND CSF EXAMINATIONS—F. Rappaport—*Grune & Stratton*, 404 p., illus., $8.75. Containing methods of microchemical and microbiological determination. For the graduate student.

THE SCIENTIFIC FEEDING OF CHICKENS—Harry W. Titus—*Interstate*, 2nd ed. 253 p., illus., $2.50. A practical book for poultry raisers.

SCORPIONS—Herbert L. Stahnke—*Arizona State College Bookstore*, 23 p., illus., paper, 75 cents. The results of direct research on an animal killer responsible for 68% of all Arizona deaths due to venomous creatures.

SELEN (SELENIUM): Gmelin's Handbuch der Anorganischen Chemie—*Gmelin-Verlag*, 8th ed., 195 p., illus., paper, $16.25. (D. R. Stein). A compilation of the material on selenium including the latest continental advances.

SKYSHOOTING: Hunting the Stars With Your Camera—R. Newton Mayall and Margaret L. Mayall—*Ronald*, 174 p., illus., $3.75. Written for anyone with a camera who wants some of the fun of photographing the heavens. Illustrated with beautiful photographs.

STATICALLY INDETERMINATE FRAMEWORKS—Thomas F. Hickerson—*University of North Carolina Press*, 3rd ed., 202 p., illus., $5.00. A technical book on engineering.

SURVEY OF UNIVERSITY BUSINESS AND ECONOMIC RESEARCH PROJECTS—Lyle C. Bryant—*Gov't Printing Office*, 240 p., paper, $1.00. A guide to current and recently completed research projects, compiled by the Department of Commerce.

VERSOS DEL SOMBRERO BLANCO—Albert William Bork—*University of Arizona*, 20 p., paper, 20 cents. A collection of "coplas" or verses which have been sung and recited in the Spanish folklore of Old and New World for centuries. Collected by the Patagonia Union High School in Santa Cruz County, Arizona.

Science News Letter, September 17, 1949

On This Week's Cover

➤ A FIERCE-LOOKING fly which looks more like a wasp, bumblebee or moth, the robber fly is a strange relative of ordinary two-winged flies.

Robber flies can and will eat honeybees and even bumblebees. But their diet also includes gnats, mosquitoes and other flies. Thus, while more formidable than the house fly, the robber fly is regarded as being generally beneficial.

Science News Letter, September 17, 1949

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⚙ *LONG-LASTING KNIFE blades, guaranteed to need no sharpening for at least three years, are made of stainless steel by a high-temperature, deep-freezing process. The blades are first heated to a temperature below the melting point, quenched in oil, put in a chamber at low sub-zero temperatures, then tempered.*

Science News Letter, September 17, 1949

⚙ *INSULATING TAPE, for electrical applicati by vulcanizing, is made of glass fiber impregnated with a rubber-like dielectric on both sides. On one side of the tape, the rubber is completely cured but on the other is semi-cured only. When heat is applied the total becomes a solid mass.*

Science News Letter, September 17, 1949

⚙ *SLEEVE FORM, for use in pressing coats without leaving a lengthwise crease in the sleeve, consists of two slightly curved pieces of wood to insert into the length of the sleeve. After insertion, the wood pieces are spread apart by an ingenious but simple wire separation and locking device.*

Science News Letter, September 17, 1949

⚙ *CHRISTMAS-TREE odor is impregnated in a wrapping paper for Christmas packages, the aroma being of the fir balsam. The wrapping paper is available in various colors, and in many designs suitable for the Christmas season.*

Science News Letter, September 17, 1949

⚙ *CHROMATIC ACCORDION, shown in the picture, is made of a styrene plastic and is suitable for beginners or accomplished musicians. With this low-cost instrument, beginners can perfect two-hand technique before advancing to the larger, professional-type accordion.*

Science News Letter, September 17, 1949

⚙ *SPEEDOMETER, suitable for use on Army tanks and other heavy vehicles used on roads where there may be a great deal of slippage between the tracks or tires and the road, is mounted on a trailing bicycle wheel which operates a generator, the voltage of which registers on a dial in miles-per-hour.*

Science News Letter, September 17, 1949

⚙ *TELESCOPIC RIFLE sight can be changed in magnification by a quarter-turn of a knurled ring near the scope's eyepiece from two and one-fourth to four power. It can be readily shifted from one gun to another without altering focus or eye distance.*

Science News Letter, September 17, 1949

⚙ *WAXES for home use, ranging from furniture or automobile to window slides, comes under pressure in a hermetically sealed can and is applied to a spray by man, woman or child, merely by pressing a trigger as with the well-known aerosol insecticide bomb. This long-lasting carnauba wax is "finished" by a light wiping.*

Science News Letter, September 17, 1949

⚙ *ELECTRIC WIRE, with a number on every inch of its insulation to correspond with terminals, is designed to eliminate the need for various colored wires, and is for use in any electric control system using more than three wires. It makes for easy, error-proof installations.*

Science News Letter, September 17, 1949

Do You Know?

American *National Parks* are sanctuaries for over 65,000 hoofed animals, and for unestimated thousands of carnivores or flesh-eaters.

Metals possess *super-conductivity* if they offer practically no resistance to an electric current when cooled to some 450 degrees below zero Fahrenheit; 13 such metals are now known.

Ocean currents are said to be responsible for the fact that the *coconut palm* is found on widely separated lands; coastal palms often drop their well-protected fruit in the water and it drifts for many miles.

Musk oxen practically disappeared from Alaska over a century ago, being killed for food; a herd brought from Greenland to Alaska nearly 20 years ago is increasing satisfactorily in spite of their low breeding potentialities.

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